

WHAT IS CLAIMED IS:

1           1. A network system wherein an IP packet according to a  
2 service requested by a terminal is sent to a service provider  
3 through a plurality of IP networks different from each other in  
4 protocol and the service is supplied to the terminal through  
5 the utilization of an IP packet transmitted from the service  
6 provider to the plurality of IP networks,

7           said network system comprising packet exchange means that  
8 is provided between the plurality of IP networks and functions  
9 to convert the format of the IP packet, to be sent, so as to  
10 match the format of the IP network as a send destination.

1           2. The network system according to claim 1, wherein the  
2 plurality of IP networks include  
3           a first IP network which the terminal accesses and  
4           a second IP network which the service provider accesses.

1           3. The network system according to claim 2, wherein the  
2 first IP network has a first server which stores services  
3 provided by the service provider.

1           4. The network system according to claim 2, wherein the  
2 first IP network has a second server which stores account  
3 information of the service which has been provided to the  
4 terminal.

1           5. The network system according to claim 3, wherein the

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2 first server stores the format of the plurality of IP networks  
3 and the address of the service provider.

1 6. The network system according to claim 1, wherein the  
2 packet exchange means measures the transfer amount of the IP  
3 packet of which the format has been converted.

1 7. The network system according to claim 2, wherein the  
2 terminal is connected to the first IP network through an access  
3 gateway which authenticates the IP packet.

1 8. A network system comprising:  
2 a user terminal to be utilized by a user;  
3 a plurality of networks of service providers or online  
4 entrepreneurs which provide various services to the user;  
5 an IP network which performs the transmission of packet  
6 data between the user terminal and the plurality of networks  
7 through a router according to an IP address; and  
8 servers connected to the IP network,  
9 said servers functioning to record information about the  
10 user, information about the plurality of service providers or  
11 online entrepreneurs, and information about services provided  
12 from the side of the plurality of networks to the user, and,  
13 based on the record, to unitarily manage account information of  
14 the service provided to the user, and to perform alternative  
15 account billing from the service providers or online  
16 entrepreneurs to the user.

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1           9. The network system according to claim 8, which further  
2 comprises a packet exchange connected to the IP network, said  
3 packet exchange functioning to convert packet data from the  
4 user terminal to the protocol and format of a send destination  
5 network within the plurality of networks, and to convert packet  
6 data from one of the plurality of networks to the protocol and  
7 format of the user terminal.

1           10. The network system according to claim 9, wherein the  
2 packet exchange performs the conversion of the packet data  
3 using MPLS (multi-protocol label switching protocol) or IP  
4 within IP.

1           11. The network system according to claim 8, wherein the  
2 user terminal is a personal computer or a portable terminal  
3 having the function of processing packet data.

1           12. A network system comprising:  
2 an IP network through which an IP packet is transmitted;  
3 an access gateway connected to the IP network;  
4 a user terminal which is installed on a user side and is  
5 connected to the access gateway;

6 servers which are connected to the IP network and  
7 function to record information about the user and the plurality  
8 of service providers or online entrepreneurs, and information  
9 about services provided from the plurality of service providers  
10 or online entrepreneurs to the user, and, based on the record,  
11 to unitarily manage account information of the service provided

12 to the user;

13 a packet exchange which is connected to the IP network,  
14 converts received packet data to the format and protocol of the  
15 network of a service provider or an online entrepreneur as a  
16 send destination, and sends the converted packet data; and

17 a plurality of border gateways which connect the packet  
18 exchange to the plurality of networks of the service providers  
19 or online entrepreneurs.

1 13. The network system according to claim 12, wherein the  
2 user terminal is a personal computer or a portable terminal  
3 having the function of processing packet data, and  
4 the access gateway is a remote access server.

1 14. The network system according to claim 13, wherein the  
2 portable terminal is a portable telephone having an i mode  
3 function.

1 15. The network system according to claim 12, wherein the  
2 user terminal and the packet exchange each are a router.

1 16. The network system according to claim 12, wherein the  
2 packet exchange is an exchange router.

1 17. The network system according to claim 12, 15 or 16,  
2 wherein the packet exchange performs the conversion of the  
3 received packet to the format and the protocol of the network  
4 of the send destination through the encapsulation of the format

5 of the original IP packet by MPLS (multi-protocol label  
6 switching protocol) or IP within IP.

1 18. The network system according to claim 17, wherein  
2 the original IP packet comprises IP (internet protocol)  
3 header + payload data,  
4 the packet data encapsulated by MPLS comprises MPLS label  
5 for path designation + MPLS label for user ID + IP header +  
6 payload data, and  
7 the packet data encapsulated by IP within IP comprises IP  
8 header for encapsulation + IP header + payload data.

1 19. A packet data transmission method wherein packet data  
2 transmission for receive/send of services between a user  
3 terminal and a plurality of service providers or online  
4 entrepreneurs is carried out using VPN (virtual private  
5 network), said packet data transmission method comprising the  
6 steps of:

7 recording, in servers, information about users, who  
8 utilize the user terminal, and the plurality of service  
9 providers or online entrepreneurs;

10 upon the receipt of a request from the user for a service,  
11 only when information about packet data from the user terminal  
12 matches access conditions recorded in the servers, converting  
13 the packet data from the user to the protocol and format of the  
14 network of a service provider or an online entrepreneur as a  
15 send destination by a packet exchange, and sending the  
16 converted packet data to a network corresponding to the

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17 designated one of the plurality of service providers or online  
18 entrepreneurs;

19 for packet data from the plurality of service providers  
20 or online entrepreneurs, converting the packet data to the  
21 protocol and format of the network on the user terminal side by  
22 the packet exchange, and sending the converted packet data to  
23 the user terminal; and

24 storing and managing account information about the  
25 services to the user and executing alternative account billing  
26 to the user by the servers.

1 20. The packet data transmission method according to  
2 claim 19, wherein the conversion of packet data by the packet  
3 exchange is carried out using MPLS (multi-protocol label  
4 switching protocol) or IP within IP.

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